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ABSTRACT

Explored are some of the current problems in the functioning and planning of higher education institutions, particularly viewed through the experience of British institutions. A framework of institutional analysis, the open systems approach, is presented as an essential prerequisite to the understanding of the organization. From this framework is derived a series of critical success factors that govern the effectiveness of the institution and its planning function. The nature and characteristics of planning systems and processes deriving from the open systems approach are discussed, with a view to their limitations. The point is made that systems have to be relevant to the capacity and understanding of the participants. The most recent attempts in Britain, though based on open systems concepts, are much removed from the highly rational and mechanized planning, programming, and budgeting (PPB) systems that were popular at one time. A bibliography is included. (Author/MSE)

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INSTITUTIONAL ANALYSIS AND PLANNING IN HIGHER EDUCATION

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U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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Paper presented to Seminar on

The Role of Institutional Research in Brazilian Higher Education

Conducted by the Ministry of Education & Culture and Association for Institutional Research

Summary of Paper by J.L. Davies

INSTITUTIONAL ANALYSIS AND PLANNING IN HIGHER EDUCATION

This paper attempts to explore some of the current problems in the functioning and planning of higher education institutions, particularly viewed through the experience of British institutions. Its starting point is the development of an framework of institutional analysis as an essential prerequisite to the understanding of the organisation. From this framework, the open systems approach, is derived a series of critical success factors, which, in the author's experience, govern the effectiveness or otherwise of the institution, and particularly condition the success or otherwise of planning as an activity.

The paper then proceeds to discuss the nature and characteristics of planning systems and processes deriving from the open systems approach, together with a view of the limitations. The paper makes the point that systems have to be relevant to the capacity and understanding of the participants, and discusses the details of the most recent attempts in Britain, which, though based on open systems thinking, are much removed from the highly rational and mechanised PPB systems which at one time were popular.

Reference is made to the concepts and techniques underlying the case study, which the seminar will be analysing as part of this study.

Section A: Understanding the Nature of the Higher Education Institution

1. Introduction
2. The Open Systems Approach
3. Critical Success Factors

Section B: A Framework for Institutional Planning

Section C: Diagnostic Planning Processes

Section D: Diagnostic Planning Processes being developed in Britain

1. Development of Staffing (Faculty) Formulae
2. Cost Analysis
3. The Life Cycle of the Educational Activity
4. A Range of Remedial Strategies
5. Summary of Conclusions

Section E: Other Perspectives on the Functioning of the Planning Process

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A. UNDERSTANDING THE NATURE OF THE HIGHER EDUCATION INSTITUTION

1. Planning an educational organisation is not an activity which can be done in isolation, either from the other activities going on within that organisation, nor its culture and organisational climate. Yet, it is remarkable how many efforts at institutional planning founder because of this neglect, and perhaps because planners are so keen to practise their sophisticated skills, that the exercise becomes a technical monument rather than an integrative organisational process. It therefore becomes imperative for the planner to have some conception of the institution which may constantly act as a conditioning factor against his more dramatic excesses!

2. My colleagues and I have found a particular version of the open systems approach to be helpful in this respect. This is based on several assumptions, namely:

   a. that any organisation to service, or to attain credibility, must be openly adaptable to the needs of its community.

   b. that any organisational manifestations - structure, decision-making processes, information, sub-groups, personnel etc. - are all inextricably linked, and to modify any one will undoubtedly have some effect on the other elements, and managers ought to assess these likely consequences before making decisions.

   c. That there are a number of key management activities which must be performed to ensure the effectiveness of the organisation.

   Figure 1 illustrates an approach to analysing higher educational institutions using the systems concept. It is fairly self-explanatory, but some observations may assist:

   a. The organisation is located within its environment or community which comprises both the substantive environment (groups within a special and continuing interest in its activities: Government, industry) and the general environment (public opinion at large, which may only be mobilised on big specific issues). The community will have various values of a political, social, religious, economic nature, which will influence how it is prepared to release resources for educational purposes, and also will have something to say about the impact which the organisation should have, and to which goals it should be addressing itself. The community therefore provides, expects and criticises or assesses. The three activities are quite clearly interrelated in a cyclical process.

b. The organisation itself therefore takes in raw resources (1) under the headings indicated, and by its various management and educational processes (2) converts them into a series of learning or teaching situations which can conveniently be regarded as its provision (3).

c. Consumers of the service then make a behavioural response (4) to this offering, by taking up or rejecting the facilities, and, in so doing, improving or not improving their own capabilities.

d. Consumers who have used the service will then leave the orbit of the institution and, returning to society, will have an impact (5) on it. positively, neutrally or negatively. This impact may be in terms of their intellectual / physical contribution; their contribution to the community's economic prosperity; their cultural development, etc. The impact of their participation may well be felt by themselves in terms of increased earnings over a lifetime, or the joys of being a better citizen or the ability to benefit more constructively from leisure. One may very well wish to define the impact in terms of the effect of the educational process on particular community problems, (if this is possible), since it is on one's perception of these problems that resources are put into the system in the first place.

e. On the basis of the consumer going through the system and finding his way to the community, it is now possible to assess (in theory) just how successful the system has been, and this necessitates the feedback loop. Here, the purpose is to gain intelligence on causes of failure and scope for improvement by establishing relationships, and without the system model, and indicators, this cannot be done.

If we begin to ask questions on the causes of institutional failure and success, a number of fascinating perspectives now begin to open up on which the planner may focus his attentions, for example:

- has the institution a clear perception of what its objectives are, and are these communicable right through the institution?

- has it identified those fields of activity in which it wishes to develop a distinctive reputation for excellence, and is it specialising, or, instead, is it spreading its resources thinly to no great effect?

- has the institution identified its particular clients, and does it know their needs and demands (e.g. for trained manpower)?

- has the institution a proactive role, in which it is consciously attempting to make the running in particular areas, or is it merely reactive to externally pressures?

- is there evidence that the provision planned and the response rate of clients is out of step (too many or too few student places?)

- how well is the organisation geared up to responding to changing circumstances?

etc.

3. There are many more such questions which may be asked of an institution, and sadly, many of the answers may not be forthcoming from a faculty and administration whose pre-occupation may be the maintenance of activities which are clearly out of date. My concern is for a "thinking" administration, and out of this concern, we have tried to evolve what we have called Critical Success Factors[2]. These are areas of performance which are crucial to the effectiveness of the institution, and failure in any one is likely to have significant restraining influences on the progress of the institution. They are:

(i) Social Tune

- how well does the institution relate to its community for purposes of support in student numbers and funding?

- how far are its products perceived as being valuable?

- does demand for its products outweigh the supply?

- is it adaptable to changing circumstances?

(ii) Existence of understood policy and objectives which are used as a basis for subsequent academic and administrative activity and are capable of being used for subsequent evaluation of performance.

(iii) Cost effectiveness - see later.

(iv) Active programme development

- are programmes of research teaching and consultancy relevant to the situation?

- are they 'healthy' programmes?

- are they continually updated to cater for changing circumstances?

- is the validation process sufficient to guarantee standards of objectives, internal logic and design, curriculum, assessment, and resource use.

(v) Corporate reputation in eyes of academic peers, governmental agencies and interested consumers.

(vi) Investment in human capital. Has the institution personnel policies which

- enable high quality staff to be recruited?
- provide high job motivation?
- recognise good performance materially and psychologically?
- reduce job stress?
- clarify with staff expectations of them?
- provide opportunities for personal and professional development?
- successfully counter staff obsolescence?
- involve staff in decision-making?

(vii) Student Relations and cared for clientele

- is student used as a resource for learning, or merely fodder?
- do students participate in decision-making?
- are there adequate facilities for catering, housing, pastoral care, sport and recreation, study, career guidance?
- how adequate is machinery for grievance handling?

(viii) Public Responsibility

Does the institution have a high sense of public responsibility in

- compliance with laws
- ethical practices
- programmes geared to social objectives
- community activity of staff members
- education for citizenship

(ix) Development of Physical Facilities

Are library, laboratory, studio, computer and audio-visual facilities relevant and adequate for the purposes of the institution, and are they used.

(x) Integration of activities

Is the institution integrated in terms of

- positive collaboration of individuals and subgroups
- clear linkages of tasks and functions which are pertinent to a given problem e.g. course development and staff development.

If these are indeed significant, than it follows that the institution must have information flows to inform planning and decision-making in each of the factors, and that performance in each should be regularly evaluated. Furthermore, responsibility for each area needs careful delineation.

B. A FRAMEWORK FOR INSTITUTIONAL PLANNING

1. "Planning" is one of those terms which has a wide range of meanings, and it is apparent that it can play many organisational roles including:

   (i) enabling administrators to try to control events rather than be controlled by them. i.e. to be proactive not reactive.

   (ii) helping administrators translate philosophies and goals into actual practice.

   (iii) conditioning subsequent decision-making at a subordinate, perhaps routine, and certainly detailed level, thus avoiding ad hoc decisions, fragmentation and duplication of decision-making.

   (iv) creating a climate of realism appropriate to the needs of the institution.

   (v) making explicit what may otherwise be conflicting or implicit assumptions or feelings.

   (vi) helping to built institutional credibility in terms of confidence that it can manage its own affairs and is capable of exercisin g a high degree of autonomy. This may be particularly necessary to win both resources and support from governmental agencies.

   Apart from its intrinsic place in the framework of critical success factors already discussed, its organisational significance is thus high.

2. In the light of the above, it may be helpful to state at the outset what I regard as desirable characteristics in any worthwhile planning process. These may be regarded as tests to apply to any planning process, and a negative response to any one of them, in my experience, usually poses difficult problems for the institution to worry about

   (i) are the plans statements of projected events in terms of clients, time schedules, quality and quantity features, and costs.

   (ii) are they based on the potential and limitations contained in the present situation?

   (iii) are they feasible, and phased along a reasonable time span?

   (iv) are they challenging, and likely to stretch the capabilities of participants, and stimulate their interest?

   (v) do they contain a statement/strategy of how barriers are to be overcome?

(vi) are they precise, thus containing clear guidelines to implementation, and making subsequent evaluation of success possible?

(vii) have they the necessary interval integration i.e. are the necessary links between course development and acquisition/ development of faculty?

(viii) have they the commitment of participants - their favourable attitude to both process and outcomes postulated; their understanding; and their responsibility for the fulfilment of plans.

(ix) are the plans open to view?

(x) are they flexible - do they contain built in contingencies to allow switching to alternative options suitable for changed circumstances?

(xi) do they contain incentives appropriate to secure action in the right direction?

This is a formidable list, but worth considering using as a check list of criteria.

3. There are, of course, many dimensions to planning, and even more techniques and systems associated with it. In a paper such as this, it seems necessary to be selective, and Figure 2 indicates a framework from which this is possible. This is a framework which allows of entry at various points. For my own part, I would wish to concentrate on Section B: Establishment of Existing Position, since this is where many attempts at planning often fall down. One cannot plan to build a 50 storey edifice on a swamp! Knowing the nature of the foundations is clearly significant.

FIGURE 2.

FRAMEWORK FOR DEVELOPMENT PLAN OF HIGHER EDUCATION INSTITUTION

A. Establishment of assumptions about future - threats and opportunities:

- economic forecasting - supply
- manpower forecasting
- technological forecasting
- analysis of demand from students/industry/LEA/government
- forecast of expected applications - qualitative/quantitative
- consequences of existing policies and practices
- nature of neighbourhood and community
- estimation of future policies of governmental and other agencies
- developments in other educational sectors.

B. Establishment and review of existing position:

- examination of college/department strengths and weaknesses - space men, money, machines, methods, systems, courses.
- estimation of life-cycle of existing activities - position statements
- appraisal of attitudes of providers and supporters
- projection of where current curriculum policies will lead resource
- clarification of existing policies, assumptions and areas deficient of policy
- resource performance - any 'reserve resource' presence
- examination of contribution of activities to policy areas

  - why the activity?
  - how?
  - who does it?
  - how well?
  - who benefits?
  - for how long?

C. Establishment of desired position:

- determination of goals in broad philosophical terms
- determination of objectives in precise terms of

area of operation (community)
size of student body
client groups
areas of excellence

- alternative options open to achieving goals
- includes time, quantity, properties

D. Implementation strategy : How to move from 2 → 3

- creative thinking - study groups - Academic board / senate
- network modelling
- MBO responsibility for key areas in 1,2,3 and 4.
- programme budgeting and allocation
- information flows
- staff development and management succession
- marketing and external relations - support, funds, students
- incentives
- curriculum and cause development
- research and consultancy
- evolving organisational chart
- rolling plans in each of the above areas.

C. DIAGNOSTIC PLANNING PROCESSES

1. A great deal of energy has been expended in USA on output oriented planning systems, particularly by WICHE and NCHEMS, much of which is excellent and impressive. However, the UK experience has been much more limited and much less successful in the output field, despite several fairly large experiments. UK seems to have been more successful in the less complex systems. The more complex ones seem to have declined for a number of reasons:[3]

   (i) the adoption of fully comprehensive systems require a data base and a degree of technical sophistication of participants in planning (politicians, administrators, and academics) that is difficult and costly to build up.

   (ii) the gestation period before their use produces clear benefits for the decision-maker is a long one and in pressing situations, impatience for results will not be denied.

   (iii) they often require information linked to manpower planning projections and rates of return analyses which in the British experience are notoriously unreliable for purposes of forecasting linked to planning.

   (iv) the systems, with their emphasis on data and trends, are perceived by many academics and politicians as threatening to their role of independent thinkers and counteractive to their desire to think out policy in "ideas" terms. In short, does the planning system support the policy maker or the policy thinker the planner? David Schick has agreed that one can have programme planning systems or budget systems: mixing the two leads to rather dubious policy formation, in that the generation of ideas and alternatives is constrained by mundane matters.

   (v) very big planning systems can produce very big mistakes. In Britain, we are currently attempting to cope with a situation induced by a massive overproduction of teachers, which was agreed as necessary in 1971 (and institutions geared to their production), and found to be wrong in 1975 (when the graduate teachers started looking looking for jobs!)

   (vi) we in Britain are (rightly or wrongly!) becoming suspicious of the long term view - especially that propounded by educational economists. In the face of this, the backlash is towards the analysis of the "here and now" or short term; the consideration of lots of micro situations rather than one macro situation; and to regard the contribution of the accountant as offering some hope in our present precarious economic condition.

2. From all these viewpoints, therefore, the search is for a diagnostic planning system, which has as its main assumptions:

(i) that planning ought to start from where we are at present, rather than where we would like to be.

(ii) that, before taking action, not only is it necessary to weigh qualitative, quantitative and financial considerations with contemporary academic and political views, but also to attempt to meet the daunting requirement of matching somewhat inflexible resources of an established system, with changes in consumer emphasis (as a result of freedom of student choice) which is a prime characteristic of British higher education.

(iii) that, on accurate diagnosis of the potential and limitations of the present institution in terms of changing emphasis is necessary before any additional new resources are committed.

(iv) that the starting point of any solution must be its relevance to the local institutional situation. Generalised system wide objectives or norms are only justifiable as long as they do not preclude the consideration of peculiar local circumstances.

(v) that, central prescriptive solutions, applied to the institutions within a system, will not be accepted simply because the centre says so. Educationalists, in my experience, have well developed skills of non-compliance with central directives they find unpalatable , and indeed can counter these with enviable ingenuity. The collaboration of educationalists, administrators, politicians and probably students is thus necessary - at least in Britain, for any system to work. Systems therefore have to be helpful, not punitive; evolutionary not suddenly threatening; and have to contain within them the necessary incentives to make them work.

(vi) that Britain is very definitely in a zero growth resource situation, and diagnostic planning systems would appear to be rather more helpful in this situation than some of the more elaborate mechanisms discussed earlier. Any planning device therefore to be politically acceptable, has to demonstrate it can save expenditure by focussing on issues of cost effectiveness, particularly in relation to faculty.

(vii) that any planning system must acknowledge that any institution has considerable inbuilt inertia, and changes, because of our nature, will tend to be incremental, evolutionary, and within the capacity of the institution to cope. Furthermore, institutions usually only have 10% of their expenditure in any year on which they have any discretion.

(viii) that the situation revealed by any diagnosis, if unsatisfactory in terms of the criteria used, will generate the main areas to which remedial attention needs to be given, and the institution and its governing organisation must reasonably possess a range of appropriate remedies from which a selection must be made, and logically ought to be incorporated in subsequent planning strategies.

In terms of our earlier systems framework then this diagnosis focusses attention on the matters concerned with input process, provision and response, and is not concerned with impact nor necessarily, educational quality which are more a matter for policy review techniques.

3. Let us sum up our position so far:[4]

Management accounting might be developed usefully in education to assist decision-makers in the following ways:

- Account for and explain the status quo in terms of resources (i.e. teaching staff, technicians, administrators, other staff, premises, and equipment) as to utilization, price levels, organisation and management.
- Establish the capacity of institutions, and, where they exist, the reserve resources that could cope with additional students at less than the present average costs.
- List long and short term options when the need arises for changes in the allocation of resources.
- Factual reporting, monitoring, and comparative inter-institutional cost statistics are taken as being understood and accepted. They do, of course, need to be interpreted with the correct reservations.

D. DIAGNOSTIC PLANNING PROCESSES BEING DEVELOPED IN BRITAIN

1. The Development of Staffing/Faculty Formulae

Sheehan and Gulko[5] have well demonstrated that the parentage of this mechanism is old indeed and apparent on both sides of the Atlantic.

The largest single element in most institution's budgets is academic staff. To be able to calculate the total requirement for academic staff and to distribute this rationally between competing departments and sections is, therefore, of critical importance. Add to this the fact that other costs tend to follow academic staff costs and it is not surprising to find a considerable research effort in this area.

The traditional academic staff resource allocation mechanism was, and is, the staff/student ratio (where SSR = $\left(\frac{\text{number of students}}{\text{number of staff}}\right)$

However, successive studies have gone behind this rather crude device to further examine the factors which determine the requirement for academic staff.

The Robbins Committee[6] identified the parameters as follows:

$$T = f(s,t,h,g)$$

where T = fte academic staff;

s = fte students;

t = average teaching load (formal "class-contact") hours/week per fte academic staff member;

g = average group (class) size; and

h = average tuition load (formal "teacher-contact") hours/week of the average group (class) g.

One simple specification of the relationship would be:

$$T = \frac{s}{g} \cdot \frac{h}{t} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (1)$$

and, hence, the SSR (staff/student ratio) is defined as:

$$SSR = \frac{h}{g.t} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (2)$$

This relationship is the one postulated by John Delany[7] and is the basis for the Pooling Committee's[8] recommendations in the "Assessment of Curricular Activity and Utilisation of Staff Resources".[9]

There are, of course, possible improvements to Equation (1). For example the total number of teaching hours provided per week (h) might be divided into hours given in the form of lectures (k) and hours given in smaller group situations called, for the sake of a name, seminars (m).

i.e. $h = k + m$

Assuming that a lecture can be delivered to an audience of 200 or more (i.e. group size is not critical for lectures although accommodation, saving the deployment of educational technology, may be) then the average group size (g) now refers to seminar group size. Again, since the parameters (k) (m) and (g) may vary by the level of students a distinction could be drawn along these lines too. Thus, with two level (say undergraduates and postgraduates) Equation (1) might be rewritten:-

$$T = \frac{k_1 + \frac{s_1}{g_1} m_1 + k_2 + \frac{s_2}{g_2} m_2}{t} \quad \ldots\ldots\ldots\ldots\ldots (3)$$

where subscripts 1 and 2 refer to first and higher degree students respectively. Equation 3 is similar to the relationship proposed by Legg (10)

Bottomley et al[11] have put forward a more generalised version similar to Equation (4) below which emphasises the importance of the educational strategy deployed reflected in the pattern of different types of meeting:-

$$T = \frac{\sum\sum h_{ij} \cdot s_j / g_{ij}}{t} \quad \ldots\ldots\ldots\ldots\ldots (4)$$

where h_{ij} = average number of formal tuition hours/week received by each type of teaching meeting, i, in the jth year of the course;

s_j = number of students enrolled in year j of the course; and

g_{ij} = maximum size of each type of meeting; in the jth year of the course and the meeting types are analysed under the following classification:-

Lectures; Exercise Classes; Discussion Classes; Seminars or Small group discussions; Tutorials; and Practice Classes on Laboratories.

The University of Lancaster CERI-OECD research group[12] in determining their teaching load have developed a model which takes account of lecture and seminar preparation and 'post-mortem' time as well as the actual formal student-teacher contact time and have derived a relationship roughly similar to Equation (5):-

$$T = \frac{k(1 + p) + \frac{s}{g}m\,(1 + \frac{q}{r}) + su}{t} \quad \ldots\ldots\ldots (5)$$

where p = average preparation time hours/week per lecture;

q = average preparation time hours/week per seminar;

r = average number of seminar "repeats" per week per member of staff; and

u = average 'post-mortem' time per student per week

However, they experienced difficulty in collecting data on "preparation" times and concede that a teachers' estimate of these might be more a measure of his experience than of his industry. Insofar as it is difficult to obtain reliable data on preparation and post-mortem times directly it seems preferable to allow for them indirectly as a part of the reciprocal of (t) - the average formal class contact of a fte teacher.

Table I

Student Hours/week Scheduled, Group Size and Teaching Load Hours/week by Subject Field

Subject Field	Student Hours/week Scheduled								Group Size *								Teaching Load	
		1st Degree				Higher Degree			Seminar						Lecture			
									1st Degree			Higher Degree			Higher Degree			
	Total	Lectures	Seminars	Observations	Total	Lectures	Seminars	Observations	Average	Maximum	Observations	Average	Maximum	Observations	Average		Average	Observations
Pure Sciences	19.5	9.9	9.6	(47)	14.9	6.2	9.0	(32)	16	30	(40)	7	13	(33)	18		8.1	(61)
Technology	25.5	13.8	11.7	(33)	20.9	11.1	9.8	(21)	17	34	(17)	7	12	(13)	11		8.9	(48)
Medical Sciences	24.2	12.6	11.6	(7)	19.5	11.5	8.0	(2)	16	28	(5)	5	12	(2)	-		6.2	(4)
Humanities	14.9	9.0	5.9	(35)	11.4	7.7	3.7	(23)	14	23	(16)	6	10	(13)	10		8.4	(45)
Law	19.3	15.3	4.0	(7)	16.3	11.6	4.7	(3)	15	38	(4)	-	-	(0)	-		5.9	(9)
Social Sciences	17.0	12.8	4.2	(31)	12.7	9.3	3.4	(23)	17	29	(18)	10	15	(15)	15		9.2	(4)

* Evidence on the group size for 1st Degree lectures was scanty but suggested an average close to the average seminar size.

Source: B. FREDRIKSEN "Subject Field and Regional Variations in Student/Staff Ratios, Academic Programmes and Recurrent Expenditures" Paris CERI-OECD 1971

TABLE II

	Faculty	Lowest	Lower Quartile	Median	Upper Quartile	Highest
(i)	Average Class Size (g)					
	1	4	6	8	18	24
	2	6	8	10	19	21
	3	5	9	11	17	17
	4	4	9	14	17	22
	5	4	8	12	16	21
	6	3	8	12	18	24
	7	3	7	13	17	19
	All	4	8	12	17	21
(ii)	Average Lecturer Hours (t)					
	1	10	11	15	$18\frac{3}{4}$	23
	2	10	$11\frac{2}{3}$	$14\frac{1}{3}$	$17\frac{1}{2}$	$21\frac{1}{2}$
	3	$8\frac{2}{3}$	10	$13\frac{2}{3}$	$16\frac{2}{3}$	$18\frac{3}{4}$
	4	$10\frac{1}{3}$	11	15	$18\frac{3}{4}$	$21\frac{1}{2}$
	5	$10\frac{1}{3}$	11	15	$17\frac{1}{2}$	23
	6	$10\frac{3}{4}$	13	$15\frac{3}{4}$	20	23
	7	10	$11\frac{2}{3}$	$16\frac{2}{3}$	20	27
	All	10	$11\frac{2}{3}$	15	$17\frac{1}{2}$	$21\frac{1}{2}$
(iii)	Average Student Hours (h)					
	1	$16\frac{1}{2}$	18	21	30	30
	2	21	$22\frac{1}{2}$	24	30	30
	3	$18\frac{1}{2}$	21	$25\frac{1}{2}$	30	30
	4	$2\frac{1}{2}$	24	$25\frac{1}{2}$	29	30
	5	15	18	$24\frac{1}{2}$	27	30
	6	$12\frac{1}{2}$	$17\frac{1}{2}$	26	30	30
	7	24	27	30	30	30
	All	$20\frac{1}{2}$	$22\frac{1}{2}$	$25\frac{1}{2}$	30	30

Faculties

1 Education
2 Health
3 Technology
4 Science
5 Social and Business Studies
6 Languages
7 Art

Equations (1) to (5) are consistent in their identification of the parameters - group, size, lecturers' teaching load, and students' tuition load. They suggest that the basis for allocating academic staff resources should be the teaching commitment and not the numbers of students.

A survey by the OECD Centre for Educational Research and Innovation of universities in member countries based on the Legg formula (approximately to Equation (3) revealed the information tabulated in Table I. An analysis of variance[11] of the data supported the contention that each subject field has its own peculiar pedagogical problems and the teaching and learning environments developed (as reflected in (h) (k) and (m) at any rate) will be much influenced by subject field.

In the Spring Term of 1970 a similar survey of all British polytechnics and institutions was commissioned. The data collected under ten broad subject classifications and analysed according to the Equation (1) to reveal for each institution the factors (g) (h) and (t). A selection of his results is indicated in Table II, for seven of the Faculties. What is evident is a fairly wide dispersion around the means for each of the factors; the pattern across subjects reflected the CERI study except that (h) and (t) were consistently higher and (g) was consistently lower; and the analysis apparently supported the making of a broad distinction between laboratory-based (e.g. Science and Technology etc.) and classroom based (e.g. humanities and social sciences etc.) disciplines.

2. Thus far, we have not dwelt on the cost implications of the analysis, and it is here that inter-institutional comparisons are of particular significance, since there is no necessary correlation between quantitative performance and financial performance.

It will be seen in the case of the two hypothetical polytechnics shown on Table 3, that the first one posits a costly stage of development, and the second a steady state, and that budgetary and unit cost problems are not always related. The figures show similar budget levels, but dissimilar unit costs. The planned capacity of (1) shows that instead of it being an expensive polytechnic per se, high unit costs arise substantially on account of a shortfall of student volume. An increase in student volume would lead to a decrease in unit costs and a marginal increase in the budget total. The example on Table 3. has been over-simplified to assist assimilation of the principles involved.

TABLE 3

Overall Recurrent Expenditrue Position of Two Institutions for a Year

TYPE OF EXPENDITURE	POLYTECHNIC (1)		POLYTECHNIC (2)	
	Expenditure £000's	Unit Cost FTE Student	Expenditure £000's	Unit Cost FTE Student
Policy determined:		£		£
Academic Salaries	3,041	1,307	2,902	641
Technicians' Pay	202	86	352	78
Administration	809	348	542	120
Premises	723	311	733	171
	4,775	2,052	4,569	1,010
Variable:				
Supplies & Materials	370	159	514	113
	5.145	2,211	5,083	1,123
Student-Staff Ratio		4.3		7.7
Actual Students (FTE)		2,327		4,528
Planned Students (FTE)		4,500		4,500

A reserve resources cost approach to volume problems seems to be commonsense. There have been interesting approaches to marginal costing in higher education, but the better ones have always admitted the practical difficulties of calculating each incremental or decremental cost as it arises . The calculation shown below works backwards from planned full capacity and identifies the reserve resources costs that are loaded on the actual student numbers, and that are available, in expansion, to cover the fixed costs of additional students up to a planned maximum

TABLE 4.

RESERVE RESOURCES CALCULATION IN RESPECT OF POLYTECHNIC (1).

RESERVE RESOURCES COST: = TOTAL FIXED COSTS x $\frac{\text{STUDENT SHORTFALL}}{\text{PLANNED CAPACITY}}$

$= £4,775,000 \times \frac{2,173}{4,500}^{*} = £2,305,794$

*(4,500 - 2,327 = 2,173)

POTENTIAL UNIT COSTS OF ADDITIONAL STUDENTS = $\frac{£2,305,794}{2,173}$ + £159 = £1,220

LOADING ON PRESENT UNIT COSTS = Actual £2,211 - Above £1,220 = £991

MARGINAL COST OF ADDITIONAL STUDENTS = £159

POTENTIAL STUDENT-STAFF RATIO = $\frac{4,500 \text{ students}}{535 \text{ staff}}$ = 8.4 (ACTUAL = 4.3)

Following the identification of reserve resources an option list might be drawn up to assist in the determination of future policy. Such a list might include adding more students at a marginal cost of £159, accepting overseas students at fees exceeding the marginal cost, arranging more flexible resources(e.g. more part-time staff, and staff on short-term contracts), redeploying resources, allowing natural wastage of staff, accept the existence of reserve resources, or change the types of courses offered.

In practice more sophistication is necessary. Analyses will embrace faculty and level of work mixes, and constraints such as lecturer-subject mismatch. An example is given in Table 5 of analysis between laboratory (Group 1) and classroom (Group 2) subjects in which it will be seen that group 1 costs are much higher.

It is also interesting to see in Table 5 that when the cost-efficiency indicators of average class size, average lecturer hours, and average student hours taught, are compared, the most significant difference is the average class size. This is a good organisational sign in the circumstances, because class size is the least controllable factor in cases of student shortfall. On the other hand the deployment of staff and the volume of the curriculum can be controlled internally regardless of the student volume. Monitoring exercises on the polytechnics show, on the whole, that the controllable factors are being handled well. There is also a smaller difference in average lecturer hours, and this could be due partly to developing courses, and partly through having to reduce lecturer contact hours to keep class sizes from falling to an unacceptably low level on student participatory grounds.

4. COST LEVEL VARIANCES

The volume variance methodology already outlined separates elements of cost between utilized and non-utilized resources. Apportionment was made at actual prices, and this is a conscious variation from commercial practice, although it is an adaptation of the normal principles of management accounting. It now remains to examine the levels of expenditure generally with a view to explaining, and where appropriate, exercising more effective control over them. Table 6 sets out the maximum ranges of cost of lecturers salaries according to the decisions taken, and conveys rather a striking picture of the effect of choice on ultimate budgets. Further information can be obtained from other publications. The table demonstrates the need for cost level examinations for the purposes of explaining, and sometimes justifying, the expenditure incurred, and of detecting unnecessarily expensive organisational practices. As examples of techniques that can be applied in these examinations two instances are given. One refers to lecturer cost variation and the other to utilization of premises and running the premises costs.

Lecturer costs may vary between polytechnics for two reasons - differences in lecturer incremental points, and differences in lecturer grade mix. The latter results from local authority discretion under Burnham staffing rules, whereas, the former may be deemed to be exogenously determined. Analysis of the current Burnham agreement reveals that potential variation is large with maximum possible average lecturer salary exceeding minimum by some 80%

TABLE 5

More Detailed Analysis by Faculties

	POLYTECHNIC(1)			POLYTECHNIC(2)		
	EXPENDITURE £000's			UNIT COST £		
	TOTAL	GROUP 1	GROUP 2		GROUP 1	GROUP 2
Academic Salaries	3,041	1,295	1,746	1,307	1,489	1,199
Technicians' Pay	202	202	-	86	232	-
Administration	809	487	323	348	560	221
Premises	723	382	341	311	439	234
	4,775	2,366	2,409	2,052	2,720	1,654
Supplies & Materials	370	186	184	159	213	126
	5,145	2,552	2,593	2,211	2,933	1,780

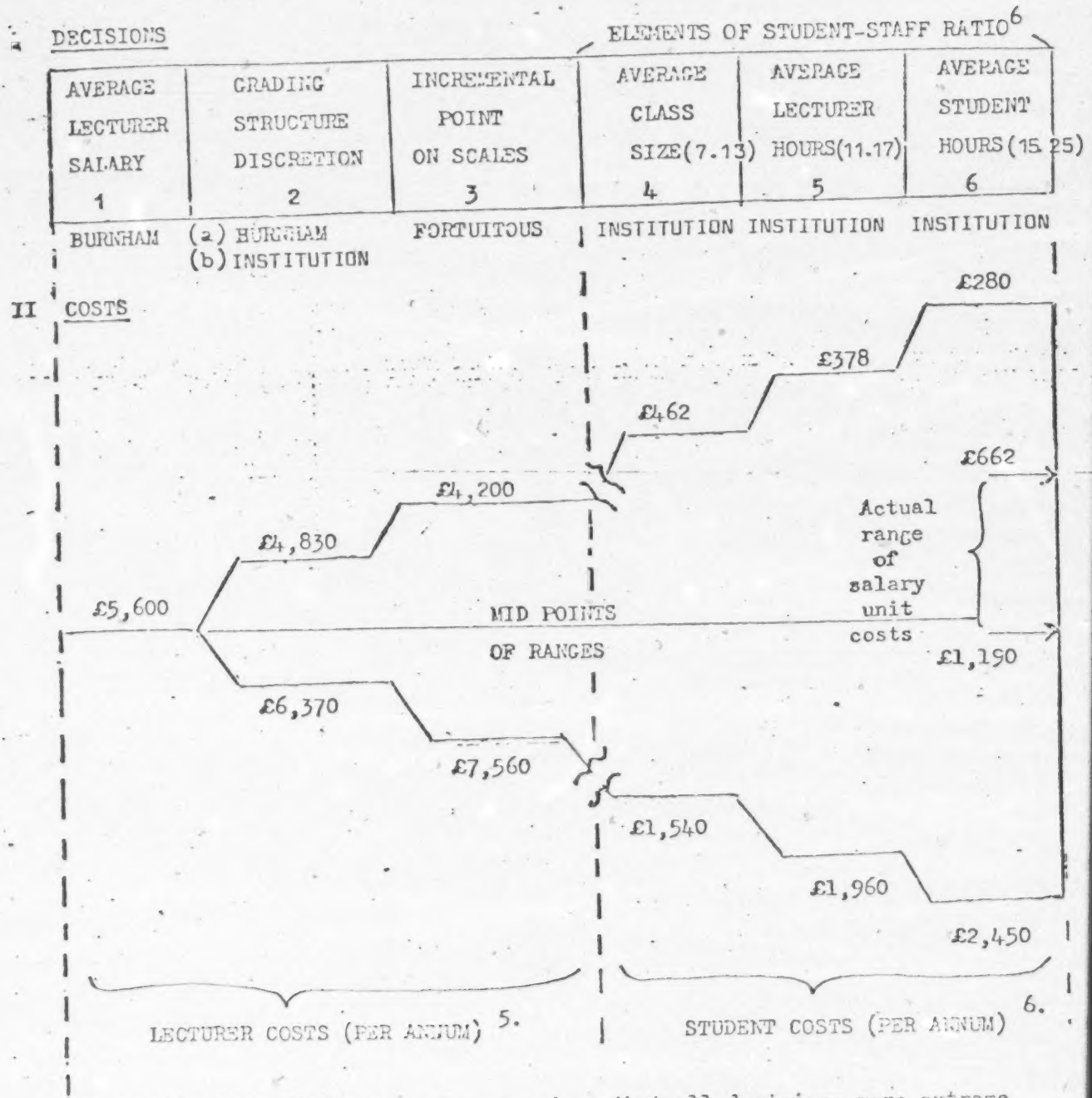
Student Numbers(FTE) POLYTECHNIC(1)	Group 1	Group 2
Actual	870	1,457
Planned	1,740	2,760
Shortfall	870	1,303
Actual Unit Cost	£2,933	£1,780
Planned Unit Cost	£1,573	£999
Reserve Resources Cost (£000's)	£1,183	£1,137
Differences loaded on present student numbers(unit)	£1,360	£781
Actual and planned staff nos.	237	298
Actual Student-staff ratios *6.	3.7	4.9
Planned Student-staff ratios	7.3	9.3
Average class actual	6.0	7.2
planned	11.8	13.7
Average class contact hours (ACH)	12.0	12.4
Average student hours (ASH)	19.4	18.3

POLYTECHNIC (2) Comparative figures	
Group 1	Group 2
7.0	9.8
11.9	13.0
11.9	13.7
15.1	13.8
25.6	18.3

See note below:

TABLE 6

The Relationship Between Decision Making and Costs



Note: (1) The potential range of costs, given that all decisions were extreme, is very much higher than is ever likely to arise, because combinations of extremes do not synchronize. Single or joint extremes, however, are not uncommon.

(2) Burnham refers to the national agreements governing salaries and grading in the British Higher Education System outside Universities. The same broad considerations also apply to universities.

To be useful in a management context, total variations must be analysed between the two causal factors. The identification technique is to allow one factor to vary while holding the other constant, thus producing a range of average salaries the size of which is attributable solely to the varying factor. In the example given below the incremental point within scales of the various grades is held constant whilst the minimum and maximum possible percentage grading discretions are set out:

Lecturer Scale

Maximum Scale Mix $\quad \frac{(£4,374 \times 0.0)}{100} + \frac{(£5,955 \times 71.1)}{100} + \frac{(£6,642 \times 23.9)}{100} + \frac{(£7,194 \times 5.0)}{100}$

Minimum Scale Mix $\quad \frac{(£4,374 \times 85.2)}{100} + \frac{(£5,955 \times 0.0)}{100} + \frac{(£6,642 \times 9.8)}{100} + \frac{(£7,194 \times 5.0)}{100}$

The resulting maximum figure(grossed up for employers' contributions to TSA/NI @ 15%)is £7,103, and the minimum figure(also grossed up) is £5,448. This implies that the total potential variation in average lecturer cost attributable to the mix factor alone is £1,660.

3. THE CONCEPT OF THE LIFE CYCLE OF THE EDUCATIONAL ACTIVITY

Many industrial management writers have agreed that any activity inevitably follows a limited life cycle, characterised by the six stages indicated in Figure 3, and it is contended that the concept may usefully be applied to an educational activity, whether it be a programme, project, or faculty. If this is the case, and it is quite compatible with the open systems approach, a number of interesting questions follow:

(i) can we identify where on the cycle our various courses and faculties are?

(ii) if they are in the stagnation stage, what remedial action is being undertaken: to persuade faculty that the situation is one of impending decay; or to hasten the decline/death of the course concerned, and embark on a new process of course innovation to replace it; or to deal with its problems by improvement of curriculum, methods, staff student relationships; etc?

(iii) can we manage the situation in a way in which undesirable peaks and troughs of activity/loadings in an institution can be avoided? Many European institutions find themselves having to jettison faculty at crucial stages in their development because of the inadequacies of workload, and low institutional credibility?

(iv) can we achieve a steady equilibrium between planned obsolescence of programmes on the one hand, and planned innovation on the other?

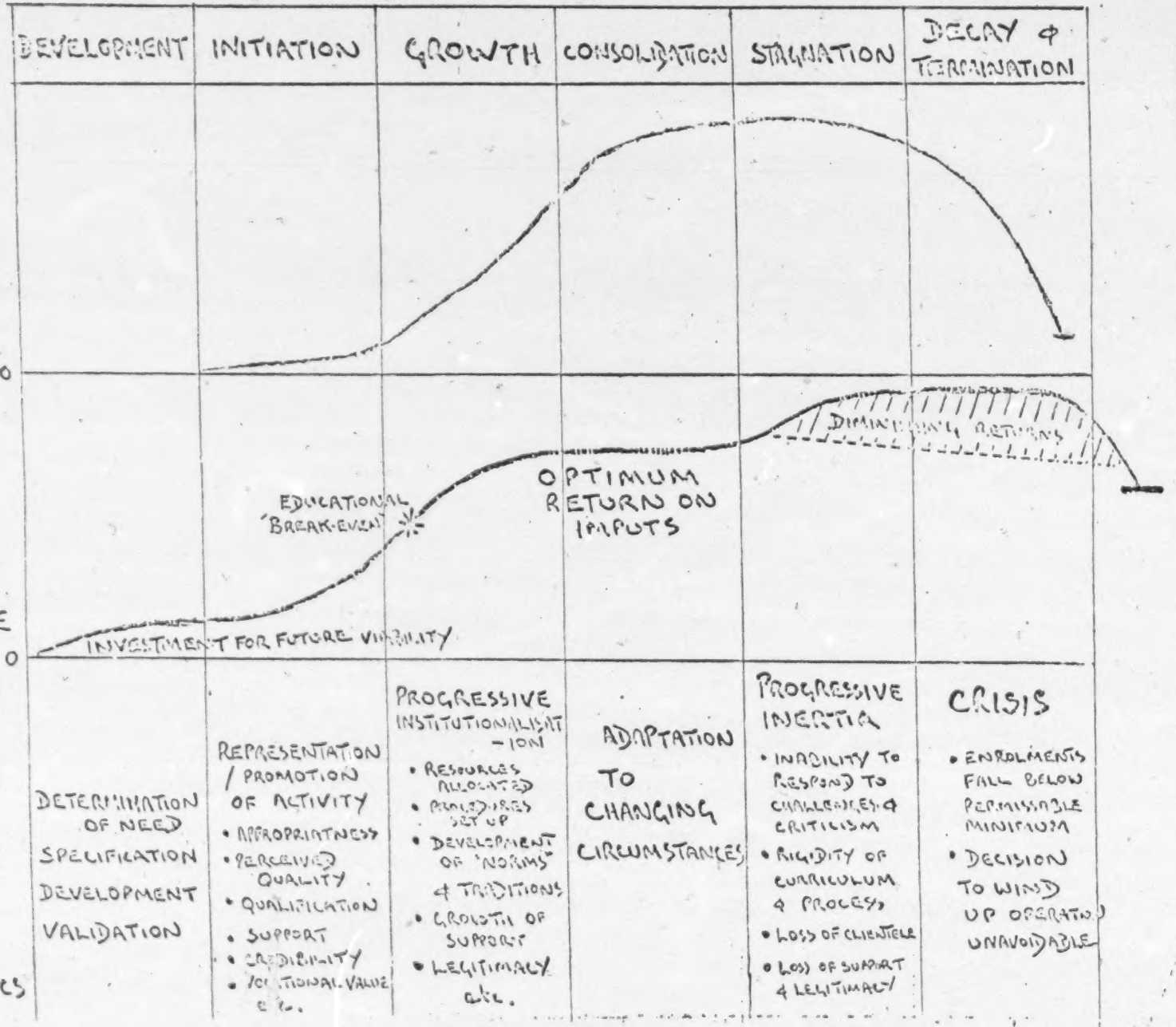
(v) have we the information, particularly from organisations who employ our students, as to their perceptions of the health of programmes vis à vis the cycle?

(vi) can we gear faculty training and development programmes, and physical equipment replacement to this cycle?

It seems to me that the concepts of Activity Life Cycles and Reserve Resources are two sides of the same coin - one represents our institution's state of health in resource terms, the other in curriculum and other activity terms, - and both have wide implications for planning.

FIGURE 3

THE LIFE CYCLE OF EDUCATIONAL ACTIVITY



4. A RANGE OF REMEDIAL STRATEGIES TO RECTIFY SITUATIONS UNCOVERED BY THE ANALYSIS

The application of these diagnostic planning frameworks to institutions is clearly going to produce a wide range of interesting information. Given the fact that their orientation was a concern for the cost effectiveness of the institution in comparison with others, or against an 'objective' standard, in broad terms, one will end up with institutions/faculties which are

(i) satisfactory from the resource utilisation standpoint

(ii) on the borderline, but certainly adequate in terms of whatever norms were used.

(iii) unsatisfactory from the resource utilisation standpoint.

Normally, remedial activity will be directed towards categories (ii) and (iii). In our observations of the British Scene [13], two forms of solutions are likely - those based on problem - resolution through devices which are primarily cost orientated; and those based on producing more favourable cost effects through a thorough-going analysis of educational objectives and alternative learning strategies and teaching models. In the short-run it is probable that the former reaction will be in the ascendancy exhibiting the following characteristics:-

(i) the substitution of capital (equipment etc.) for labour;

(ii) the substitution of student initiative for staff supervision; (technicians/clerical);

(iii) the substitution of low cost labour for high cost labour (teaching staff);

(iv) an increase in the intensity of labour utilisation;

(v) the non filling of academic staff vacancies and the re-education and subsequent redeployment of staff in other related disciplines and departments;

(vi) a closer look at the efficiency of the marketing function with a possible change in priorities: e.g. a search for "high enrolment" courses and increased enrolments in low cost (in terms of academic staff) subjects; and

(vii) a curtailment of the option range in courses.

In themselves, each of these are perfectly valid activities, since they attach an immediate problem by attempting to reduce staffing costs and increase student numbers, and it is arguable that institutions ought to have been striving after such economies anyway, with or without the stimulus of the external review. However, in the position of reacting to an immediate problem, it would be unfortunate if precipitate action justifiable in cost terms neglected other significant factors. In particular:

(i) the primary aim must be to maintain and extend the academic excellence and social responsiveness of the institution;

(ii) any staffing adjustments require a humane and supportive personnel policy;

(iii) some attention ought to be given to the problem of inducing in staff with managerial responsibilities the incentive to be cost conscious and economic in their planning and deployment of staff (consistent of course, with their educational goals). Staff who design and run courses are making these type of decisions, but it is debatable whether resource consumption is a factor high in their minds. At present, there is no such incentive, and it is not the purpose of this paper to consider these. However, the notion of cost centres within departments has something to commend it;

(iv) to facilitate (ii) and (iii) there should be an increased investment in attempts to establish:

(a) a finer definition of output than the numbers of fte students,

(b) the extent of the real substitutability of inputs and

(c) the relationship between inputs and outputs.

It is one thing to view the problem as a cost problem, but rather more interesting to view it from an educational perspective, and one suspects easier to justify to academics! Perhaps the problem needs to be approached thus:

(i) establish the nature of the educational objectives of one's activities, in behavioural terms;

(ii) identify a range of alternative instructional/learning models which would enable these objectives to be fulfilled;

(iii) cost these alternatives;

(iv) select that which offered the optimum in terms of educational benefits and resource consumption.

The accompanying Figure 3 indicates a range of such alternatives, principally drawn from American sources,[14] and not at all complete. (It omits reference to the Keller Plan, for instance, which is finding appropriate application in U.K.). Clearly, a considerable act of judgment has to be made at the conclusion of the analysis: in educational decision- making it was ever thus. However, the judgment is clearly directed primarily towards educationally based alternatives, not cost based alternatives.

FIGURE 4. ALTERNATIVE INSTRUCTIONAL MODELS

1. CONVENTIONAL MODEL:

TRADITIONAL MIX OF LECTURES, TUTORIALS, LAB WORK.
COMMON COURSE FOR ALL STUDENTS MOVING AT SAME SPEED.
GENERALLY: HIGH PRICED LABOUR CONSUPTION (LOW USE OF SUPPORT STAFF)
PASSIVE STUDENTS
INTENSIVE FOR STAFF AND STUDENTS
CAPITAL A SUPPLEMENT FOR LABOUR, NOT A SUBSTITUTE
POOR USE OF EQUIPMENT.
QUALITY QUESTIONABLE - INEFFICIENT USE OF INDIVIDUAL TIME
NO INCENTIVE TO LEARN
INCENTIVE TO 'PASS'
FRAGMENTED USE OF TIME.

2. RUML MODEL:

EMPHASIS ON LARGE LECTURE GROUPS FOR 1/4 COURSE
SUPPLEMENTED BY INTENSIVE TUTORIALS.

GENERALLY: CONCENTRATION OF ACADEMIC OFFERINGS INTO MAJOR AREAS OF EXCELLENCE.
CONSIDERABLE REDUCTION OF SMALLER COURSES & OPTIONS.
LABOUR PRODUCTIVITY HIGH, BUT ALSO REDUCED LOADS.
'STAR' LECTURERS, + 'PASTORAL' ACADEMICS + ASSISTANTS (C+ BURNHAM)
SALARY SAVINGS.
CAPITAL COSTS LOWER - LARGER ROOMS
HIGHER UTILISATION OF TEACHING & LIBRARY FACILITIES.
LOWER INSTRUCTIONAL COSTS.
QUALITY UNCLEAR: COMPLAINTS OF LARGE CLASSES + IMPERSONALITY
NO ACTIVE ENCOURAGEMENT OF 'FRINGE' SUBJECTS.
STAFF FRICTION, DEPENDENT ON ROLE

3. PROGRAMMED-INDEPENDENT STUDY MODEL:

BROAD-FRAME SYLLABUS WITHIN WHICH STDENT PURSUES TAILOR-MADE PROGRAMME.
CONSIDERABLE LATITUDE FOR STUDENTS - LECTURER A RESOURCE CENTRE/CONSULTANT.
THIS WOULD REPLACE ½ EXISTING CURRICULUM.

GENERALLY: SAVINGS IN STAFF
ROLE CHANGE FOR STAFF
MORE COURSES POSSIBLE WITH SAME STAFF (?)
LESS CAPITAL COST FOR CLASSROOMS - MORE FOR INDIVIDUAL WORK SPACE.
CONSIDERABLE POTENTIAL FOR RAISING QUALITY OF INSTRUCTION:
ACTIVE STUDENTS
BUT - POSSIBILITIES OF STUDENTS UNABLE TO TAKE RESPONSIBILITY REJECTED, AND OF INCREASED INDIVIDUAL SUPERVISION TIME WHICH WOULD NEGATE SAVINGS.

4. BAKAN MODEL:

COMPRESSED + UNSTRUCTURED CURRICULUM + EXTENSIVE USE OF TUTORIALS.
ARRANGEMENT OF CURRICULUM SO THAT TUTORIALS USED WITHOUT UNDUE COST.
STUDENT FREE TO SELECT FROM A LIST OF COURSE + DEVELOP INDIVIDUAL PLAN OF STUDY/TERM.
STAFF FREE TO DECIDE OWN ROLE + FREQUENCY OF ACTIVITIES, FOR

DETERMINING STUDENT ASSIGNMENTS
REVIEW PROGRESS

5. KIEFFER MODEL:

CREATION OF COURSES BASED ON
- PROGRAMMED LEARNING & INSTRUCTORS.
- STUDENTS SELECTION OF PACE OF WORK.
- SEQUENTIAL PHASES (WITH INSTRUCTIONS, ASSIGNMENTS ETC).
- 'LEARNING RESOURCE CENTRES.'

INDEPENDENT STUDY BASE DIFFERING FROM 3 & 4 IN THAT
- IT REQUIRES HEAVY PREPARATION BY STAFF: 1 YR IN ADVANCE.
- STAFF MUST BE EXPERIENCED IN LEARNING BEHAVIOUR
- MAJOR INVESTMENTS IN SOFTWARE & HARDWARE
- " " " SUPPORT STAFF.
- DENIES INDIVIDUAL STAFF MUCH CREATIVITY IN ACTUAL OPERATION OF PROGRAMMES.

EFFECTS OF:
- INCREASED LABOUR PRODUCTIVITY.
- " LABOUR SAVINGS (BY CAPITAL SUBSTITUTION).
- MORE INTEGRATED COURSES.
- MAXIMISING LEARNING MOMENTUM.
- BEHAVIOURAL OBJECTIVES FOR COURSES.
- TEACHING STUDENTS HOW TO LEARN EFFECTIVELY.

SUMMARY

INSTRUCTIONAL MODEL	LABOUR COSTS	CAPITAL COSTS	LABOUR INTENSITY	RELATIVE LABOUR PRODUCTIVITY	REL.COST OF OUTPUTS	REL QUALITY OF OUTPUTS
CONVENTIONAL	H	M	H	M	MH	M
RUML	VH	M	H	VH	ML	M
PROGR./INDEP.STUDY	H	M	M	H	M	MH
BALKAN	H	M	H	ML	H	MH
KIEFFER	H	H	M	H	H-VH	MH

5. Summary: Uses of these analyses

Let us attempt to summarise our principal conclusions thus far:

(i) the first and most obvious use of these frameworks is that they provide a base for discussions on resource provision and allocation in a manner which is reasonably consistent and open.

(ii) a second use of staffing formulae, which follows directly from the previous paragraph, is that they form a basis for data collection which can be used to support SSR targets. The recently introduced targets for advanced further education were (presumably) based on the data analysis of the 1970 survey. If SSR 'norms' are based on historical measures of central tendency then care is needed to ensure that the data is collected in a reasonably 'stable-state' situation or that it is continuously updated, or, preferably, both. In the Spring Term of 1970 polytechnics were newly established and, arguably, in a period of rapid change and development! Insofar as SSRs are a function of (g) (h) and (t) and these, in turn, reflect the educational strategy deployed, it might be argued that 'norms' based on yesterdays' behaviour were a poor guide for tomorrows' provision and that, say, national committees charged with identifying future optimum pedagogical practice, were to be preferred. However, even if it was possible to obtain a measure of agreement from academics on optimum teaching and learning environments, the resultant standardisation of practice would be at odds with the British tradition in education. There is nothing particularly golden about the mean and if all institutions were forced towards it the result could well be a triumph of mediocrity.

(iii) at institutional and sub-institutional level staffing formulae provide a means of self analysis and a guide for future action. Faced with specific SSR targets they can be used internally to examine some of the cost aspects of alternative educational strategies. This tactic of allocating resources at the centre via an overall SSR and

allowing institutions to discover their own roads to salvation has the merit that it allows for flexibility and, hence, creativity in teaching and learning methods at 'course'-level. Pressure in the form of SSR targets may prompt a search for alternative, less labour intensive may be educationally superior ways of achieving the learning objectives i.e. it may prove to be an effective change-agent'; whereas pressure in the form specific targets for (g) (h) and (t) might well atrophy the system in the form of present, or worse, past pedagogical practice. On the other hand, Bottomly et al have demonstrated that, as far as Bradford University is concerned, supporting expansion with a constant SSR could result in more staff being allocated than were necessary to maintain existing average class-contact loads. Therefore, they recommended that consideration be given to using a teaching commitment rather than a SSR in calculating the extra staff necessary to support the exapansion of student numbers.

(iv) So far emphasis has been on institutional managment. These concepts can also be applied to wider planning exercises whether by larger local authorities with more than one major institution, or by national reviewers. They can make an indispensable contribution by establishing which institutions contain reserve resources, and so indicate those high unit costs that are not, as might be supposed, an economic drawback, when decisions are taken about allocation of increased student numbers. It is very important to note that

existing organisational patterns must not be perpetuated if the acquisition of yet more resources is to be avoided. Decision-making in such circumstances must be followed by the exercise of organisational skills before better use of resources are ensured and lower unit costs achieved. Once the loaded unit cost factor has been isolated the efficiency of the remaining planned unit cost can be appraised by the use of other management techniques. Table 7 shows how the identification of reserve resources over a number of institutions can add an entirely different dimension to cost considerations than the conventional average unit cost approach supplies. For instance in terms of unit cost efficiency it seems that institution 3 and institution 5 are in exactly reverse roles than might have been supposed.

TABLE 7

RESERVE RESOURCES AND COST-EFFICIENCY APPRAISALS
IN WIDER PLANNING CONTEXT (IGNORING VARIABLE COSTS)

INSTITUTION	1.	2.	3.	4.	5.
BUDGETS £000's	4,100	5,065	4,000	4,400	4,400
ACTUAL STUDENTS	3,000	2,666	2,000	3,000	4,000
POTENTIAL STUDENTS	4,000	4,000	4,000	4,000	4,000
RESERVE RESOURCES £000's	1,025	1,688	2,000	1,100	NIL
ACTIVE RESOURCES £000's	3,075	3,376	2,000	3,300	4,400
ACTUAL UNIT COST £	1,367	1,900	2,000	1,467	1,100
LOADED ELEMENT £	342	634	1,000	367	
POTENTIAL UNIT COST £	1,025	1,266	1,000	1,100	1,100

NOTE: In these institutions the resources are geared to the potential students. The principles of analysis would need modification if, for instance, the student-staff ratio of institution 3. was geared to the actual students. If this was the case, however, there would be something radically out of normal line with the cost levels.

E. OTHER PERSPECTIVES ON THE FUNCTIONING OF THE PLANNING PROCESS

1. This, of course, is not the only approach possible to understanding the higher education institution, though it is probably one of the most comprehensive. We have also to acknowledge that the higher education institution comprises people, and people have their own peculiarities, both as individuals and as working groups in departments or across the University. One may thus ascertain the health of an organisation using behavioural criteria which is different from the open systems criteria. Here, the assumption is that an organisation which has people who can work together collaboratively confronting common problems and solving them (rather than pretending that they do not exist!) is going to be able to survive and prosper far better than one which displays opposing characteristics. This approach is particularly well developed by Fordyce and Weill,15, (See Appendix A).

2. Another group of management thinkers, on the other hand, view the systems approach as being far too rational, and that described by Fordyce and Weill as being too optimistic and unreal in a highly competitive world. March and Cohen,16, profess no illusions about the manageability of the modern higher education institution. Their conclusion is simply that it is unmanageable using either a rationalist model or one based on brotherly love, (though they acknowledge a place for both). They develop instead a perspective based on political analysis, in which they characterise the President or Chief Administrator as having a role which is

   - entirely reactive - other people control his time by giving him their problems
   - parochial
   - important to him only
   - ambiguous in only having a limited range of powers and sanctions
   - illusory in that the powers of office are considerably less than the responsibilities.

   They furthermore characterise the institution as being an "organised anarchy" because

   - goals are entirely ambiguous and are no use for decision-making or planning
   - teacher autonomy in the classroom precludes forcing change where it really matters
   - the working norm is competition rather than collaboration
   - restrictive union policies may limit enterprise and creativity

- technologies and processes are unclear
- coalitions in committees are constantly changing
- the institution is fragmented into largely autonomous departments
- many different "working idiologies" exist within the institution making consistent planning over a broad front highly difficult.

March and Cohen's conclusion is therefore that if the institution is political, then the senior administrator must act politically, and this applies to the planning process as well as everything else. Appendix B indicates the types of power groupings seen by March and Cohen, and the assumptions which underlie the groups beliefs, feelings and responses. This has been interestingly adapted to my own institution, North East London Polytechnic, by the Director, Dr. Brosan, with considerable validity. The implications for the planner are clear. Whatever the conclusions he produces by analytical sleight of hand, he has to legitimise through the appropriate channels, and this involves him being active in tactical approaches to secure widespread agreement for his plan of action. March and Cohen indicate some aspects of the approach in Appendix C. No doubt we will all recognise elements of either ourselves or our colleagues in the picture painted!

3. The significance of these additional perspectives is considerable for those who are planning institutions internally or externally. They are not engaged only in a technical exercise, but a highly complex situation where if the fruits of cost analysis are to be made use of, the climate within the institution, and between the institution and the outside world has to be right to sustain the movement. Resistance to change and resistance to threats are the subject of another paper, but from experience I cannot doubt that the creation of a suitable human environment for planning systems is a necessary preliminary stage.

SOME CHARACTERISTICS OF UNHEALTHY AND HEALTHY ORGANISATIONS

Unhealthy	Healthy
1. Little personal investment in organizational objectives except at top levels.	1. Objectives are widely shared by the members and there is a strong and consistent flow of energy toward those objectives.
2. People in the organization see things going wrong and do nothing about it. Nobody volunteers. Mistakes and problems are habitually hidden or shelved. People talk about office troubles at home or in the halls, not with those involved.	People feel free to signal their awareness of difficulties because they expect the problems to be dealt with and they are optimistic that they can be solved.
3. Extraneous factors complicate problem-solving. Status and boxes on the organization chart are more important than solving the problem. There is an excessive concern with management as a customer, instead of the real customer. People treat each other in a formal and polite manner that masks issues - especially with the boss. Non-conformity is frowned upon.	3. Problem-solving is highly pragmatic. In attacking problems, people work informally and are not preoccupied with status, territory, or second-guessing "what higher management will think." The boss is frequently challenged. A great deal of nonconforming behaviour is tolerated.
4. People at the top try to control as many decisions as possible. They become bottlenecks, and make decisions with inadequate information and advice. People complain about managers' irrational decisions.	4. The points of decision-making are determined by such factors as ability, sense of responsibility, availability of information, work load, timing, and requirements for professional and management development. Organizational level as such is not considered a factor.
5. Managers feel alone in trying to get things done. Somehow orders, policies, and procedures don't get carried out as intended.	5. There is a noticeable sense of team play in planning, in performance, and in discipline. In short, a sharing of responsibility.
6. The judgment of people lower down in the organization is not respected outside the narrow limits of their jobs.	6. The judgment of people lower down in the organization is respected.
7. Personal needs and feelings are side issues.	7. The range of problems tackled includes personal needs and human relationships.
8. People compete when they need to collaborate. They are very jealous of their area of responsibility.	8. Collaboration is freely entered into. People readily request the help of others and are willing to give in turn. Ways of

Seeking or accepting help is felt to be a sign of weakness. Offering help is unthought of. They distrust each other's motives and speak poorly of one another; the manager tolerates this.

9. When there is a crisis, people withdraw or start blaming one another.

10. Conflict is mostly convert and managed by office politics and other games, or there are interminable and irreconcilable arguments.

11. Learning is difficult. People do not approach their peers to learn from them, but have to learn by their own mistakes; they reject the experience of others. They get little feedback on performance, and much of that is not helpful.

12. Feedback is avoided.

13. Relationships are contaminated by maskmanship and image building. People feel alone and lack concern for one another. There is an undercurrent of fear.

14. People feel locked into their jobs. They feel stale and bored but constrained by the need for security. Their behaviour, for example, in staff meetings, is listless and docile. It is not much fun. They get their kicks elsewhere.

15. The manager is a prescribing father to the organisation.

16. The manager tightly controls small expenditures and demands excessive justification. He allows little freedom for making mistakes.

17. Minimizing risk has a very high value.

18. "One mistake and you're out."

helping one another are highly developed. Individuals and groups compete with one another, but they do so fairly and in the direction of a shared goal.

9. When there is a crisis, the people quickly band together in work until the crisis departs.

10. Conflicts are considered important to decision-making and personal growth. They are dealt with effectively, in the open. People say what they want and expect others to do the same.

11. There is a great deal of on-the-job learning based on a willingness to give, seek, and use feedback and advice. People see themselves and others as capable of significant personal development and growth.

12. Joint critique of progress is routine.

13. Relationships are honest. People do care about one another and do not feel alone.

14. People are "turned on" and highly involved by choice. They are optimistic. The work place is important and fun. (Why not?).

15. Leadership is flexible, shifting in style and person to suit the situation.

16. There is a high degree of trust among people and a sense of freedom and mutual responsibility. People generally know what is important to the organization and what is not.

17. Risk is accepted as a condition of growth and change.

18. "What

19. Poor performance is glossed over or handled arbitrarily.	19. Poor performance is confronted, and a joint resolution sought.
20. Organization structure, policies, and procedures encumber the organization. People take refuge in policies and procedures and play games with organization structure.	20. Organization structure, procedures, and policies are fashioned to help people get the job done and to protect the long-term health of the organization, not to give each bureaucrat his due. They are also readily changed.
21. Tradition!	21. There is a sense of order, and yet a high rate of innovation. Old methods are questioned and often give way.
22. Innovation is not widespread but in the hands of a few.	22. The organisation itself adapts swiftly to opportunities or other changes in its marketplace because every pair of eyes is watching and every head is anticipating the future.
23. People swallow their frustrations: "I can do nothing. It's their responsibility to save the ship."	23. Frustrations are the call to action. "It's my/our responsibility to save the ship."

From: Fordyce, J. K., and Weil, R. "Managing with People" pp. 11-14.

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